

Eye Tracking Data Analysis

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1. Introduction

The project intended to improve visual attention and cognitive processing by studying eye-tracking.

It aimed to develop a software to accurately detect eye aspects like pupil, position, corneal reflection, pupil dilation, and movements. The software will work with the Tobii Eye Tracker 4c device and analyse collected data for fixations, saccadic and pursuit movements, x and y coordinates and heatmaps.

2. Aim & Objectives

- Investigate literature of the eye, eye tracking and technologies.
- Design a software tool to capture the eye and its movements.
- Design software to analyse the captured data and output fixations, type of movement and coordinates
- Testing of the analysis tool with data collected from Tobii eye tracker.

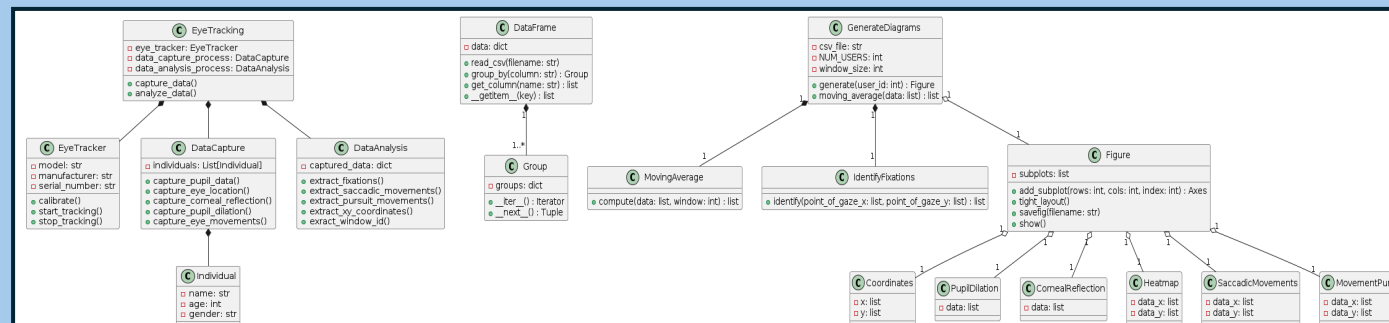
3. Methodology & Requirements

The projects research methodology approach was the research onion. The development methodology included the feature driven and object orientated methodology.

MoSCoW Criteria

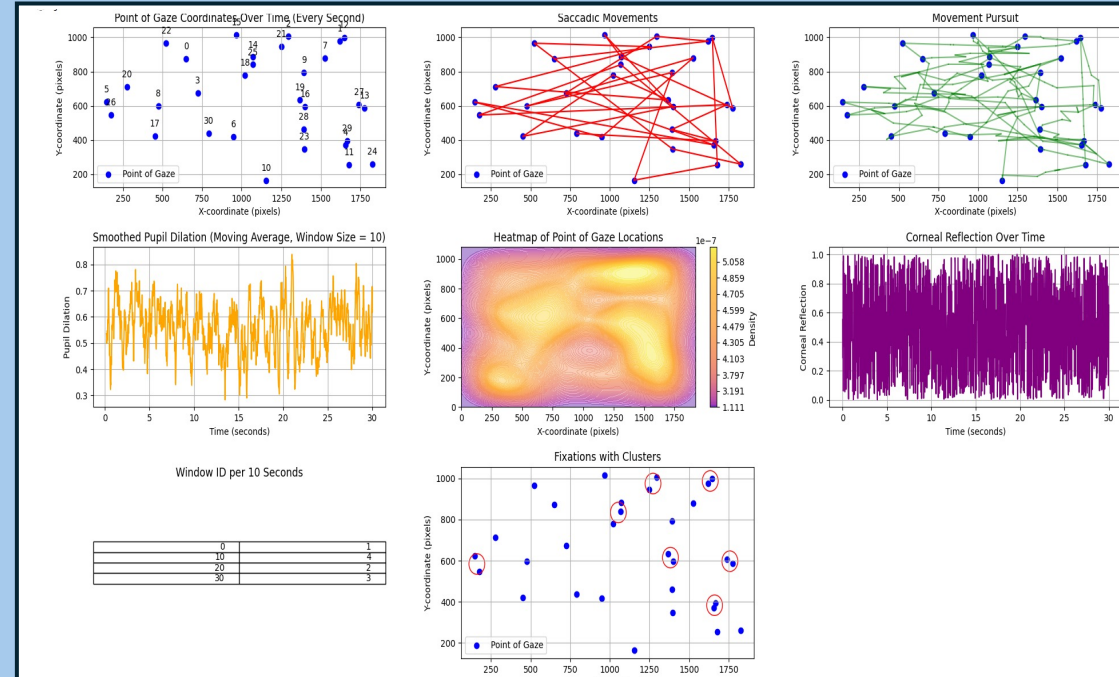
MUST HAVE	SHOULD HAVE	COULD HAVE	WON'T HAVE
Device Selection	Calibration Process	Iterative Improvement	Advanced Analysis Techniques
Parameter Capture	Data Pre-processing	Feedback Integration	Interfacing with External Systems:
Software Development	Quality Assurance	User Interface Enhancement	Longitudinal Study

4. Design & Implementation



The design chosen for this project was to use class diagrams to depict the process of the development of each software. The left diagram depicts the overall process of design, and the right diagram depicts the analysis process of the design .

5. Results



The projects results included the desired outputs of finding the X and Y coordinates, Saccadic and Pursuit movements, Heatmap of X and Y coordinates and Pupil Dilation. The software produced Fixations that were mostly accurate and Corneal Reflection of the amount of infrared light seen by the eye tracker.

6. Conclusion

Overall, the conclusion is that most of the desired outputs and objectives were achieved, and the overall aim had been complete.

If given more time the initial setback would have been resolved and the project would achieve all objectives.